

Environmental Issues Related to Right of Ways

What do you need to know?

IIF™ Incident and Injury-Free™



Andre Zwanenburg

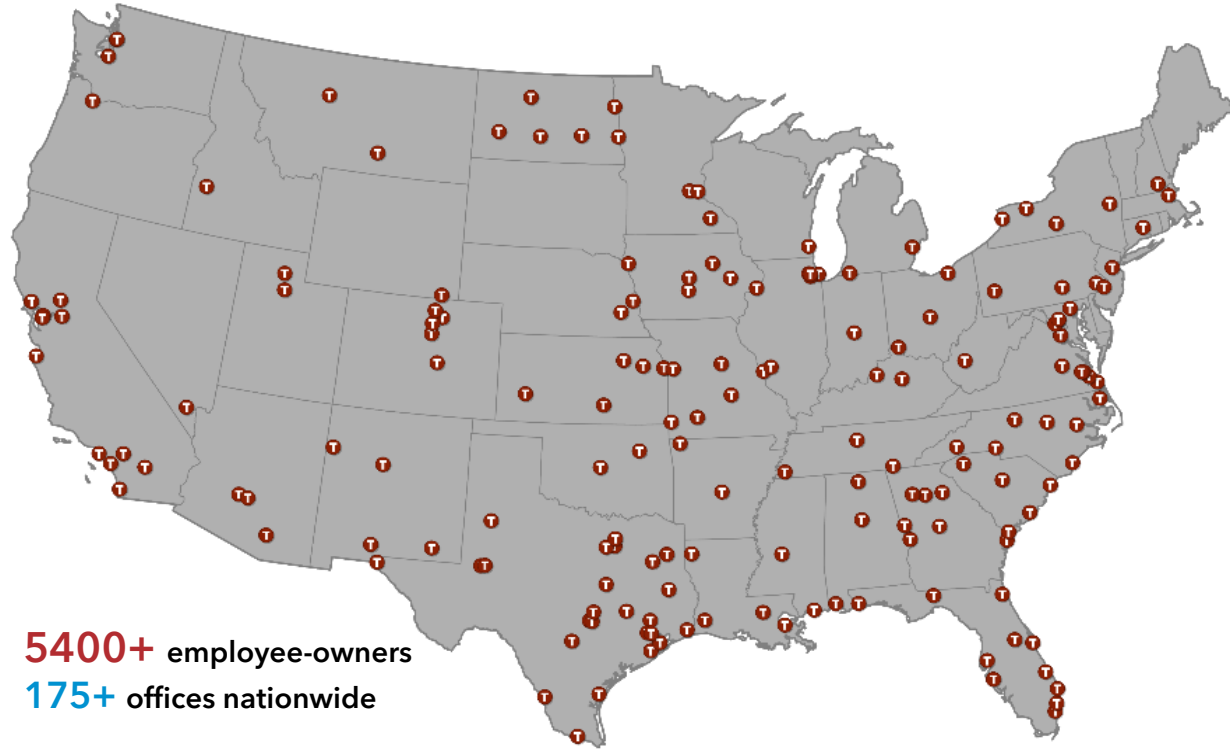
Senior Training & Development Specialist/ Sr. PM

Hazwoper Training
Asbestos Training
DOT Hazmat Transport Training
RCRA Training
and More



Explore with us

Terracon: DOMINANT IN OUR MARKETS Leveraging Nationwide Resources



5400+ employee-owners
175+ offices nationwide

ENR Rankings 2022

- #1 Asbestos and Lead Abatement
- #12 Top 100 Pure Designers
- #21 Top 500 Design Firms
- #46 Top 150 Global Design Firms
- #61 Top 200 Environmental Firms
- #10 Top 20 General Building

- Facilities
- Environmental
- Geotechnical
- Materials

ENR RANKINGS 2022

#1

Asbestos and
Lead Abatement



100%
employee-owned

Best at People

Environmental Practice Areas

Due Diligence
and Transactional
Support

Hazardous
Materials –
Asbestos & Lead
Paint

Site
Characterization,
Investigation &
Remediation

Environmental
Planning /
Sustainability

Brownfields and
Site
Redevelopment

Industrial Hygiene

Regulatory
Compliance

Cultural Resources

Landscape
Architecture,
Planning and
Design

Arizona - 70 Team Members

Engineers, Geologists, Archaeologists, Environmental Scientists, Planners, Landscape Architects, Biologists, Sustainability Professionals

What are some of the things we are going to talk about today?

Environmental Review/ Environmental Clearance Actions

Hazardous Materials review

- Preliminary Initial Site Assessment (PISA)
- Asbestos
- Lead

More later!

- US Waters of the US
 - Biological review
- Archaeological review

Hazardous Materials

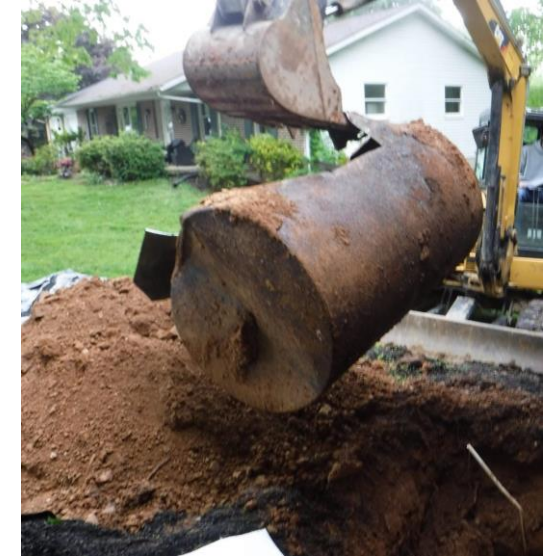
Hazardous Material is any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, or property when transported in commerce.

Highest risk of encountering Hazardous Material contamination during construction:

- significant excavation or cuts greater than 1.5 feet (18 inches),
- vertical alignment changes,
- underpasses, • trenching, • tunneling, • storm sewers,
- pipeline and underground utility installation or adjustments,
- confined spaces, • de-watering

General Hazardous Materials Issues

- Soil Contaminations
- UST's
- AST's
- Asbestos
- Lead



Who is requiring Environmental Reviews?

When a Roadway Project is within a ROW where federal aid funds are used.

- ADOT
- Programmatic agreements – with Tribes, Land management agencies, utilities
- City Street Transportation Department
- County Transportation Department
- Properties of Interest to be acquired:
 - for ROW purposes,
 - currently owned properties where design and installation of conduit, pull boxes, fiber, splice closures, and ethernet switches will occur or
 - future disposal of portions of no longer need properties.

Preliminary Initial Site Assessment (PISA)

- What is a PISA?
 - The primary assessment tool for the discovery and assessment of potentially impacted areas of interest for ADOT is the PISA – Preliminary Initial Site Assessment
- How can it help me?
 - Design constraints/modifications,
 - limits of disturbance,
 - determine precautions for construction workers,
 - reduce risk. Should be performed as early as possible in the project development in case changes in design, placement, or permitting need to take place.

Preliminary Initial Site Assessment (PISA)

- The components of the PISA include:
 - reviewing project design and right-of-way requirements
 - reviewing existing and previous land use
 - reviewing regulatory agency databases and files
 - performing project site visits or field surveys
 - determining the need for further investigation, considerations and/or coordination.
 - Title and lien searches
- Resources include:

Topographic Maps, Historic aerial photographs, Soil surveys, ROW maps and files, ADOT Temporary use of ROWs agreements, Environmental data base review

Preliminary Initial Site Assessment (PISA)

- Low vs High *potential* for encountering hazardous material contamination during construction.
- Results of PISA indicate if there was a Potential Environmental Condition (PEC) identified on site.
- Recommendations:
 - High Priority Phase I: Does all previous analysis require a more in-depth analysis that would be provided by the completion of a Phase I, to ASTM 1527-21 standard.
 - Medium Priority Phase I: Does all previous analysis provide the author with uncertainty of data conclusions but feels that a Phase I may or may not be needed to provide conclusive data.
 - Low Priority Phase I: Author feels some concern that additional information is needed by the completion of a Phase I, Environmental Site Assessment.
 - No additional survey required: Author feels that data collected and analyzed is sufficient to provide clearance for Hazardous Material for the project.

Preliminary Initial Site Assessment (PISA)

- What are some limitations?
 - If the project changes, the PISA needs to be re-evaluated,
 - does not give CERCLA liability protection,
 - can't be used as part of a due diligence process.

Material containing asbestos or lead-based paint on ROWs

Both asbestos and lead are hazardous materials that require special work methods and handling to protect the worker and the environment.

- The paint on bridge structures and in road striping may contain lead.
- There is potential for asbestos in bridge rail gaskets and expansion joints as well as in structural concrete (structural concrete is used to construct load-bearing structures such as bridges, concrete box culverts, and culvert headwalls and wing walls).
- Pavement marking obliteration requires testing and possible permitting for removal.

A survey is needed to determine proper abatement, waste disposal and contractor safety considerations according to applicable regulations.

What is Asbestos?

- Asbestos is a natural mineral.
- Mined throughout the world for thousands of years



Aerial of largest asbestos mine in the world. Asbest, Russia



Chrysotile
 $Mg_3Si_2O_5(OH)_4$
Arizona

Raw form of Chrysotile Asbestos



Various forms of Asbestos

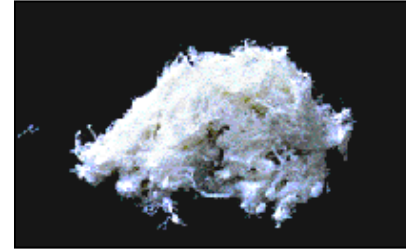
Explore with us

Regulated Asbestos Minerals

(Used in Building Products)

Chrysotile

"White Asbestos"



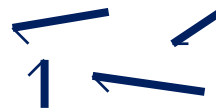
Amosite

"Brown Asbestos"



Crocidolite

"Blue Asbestos"



Regulated Asbestos Minerals

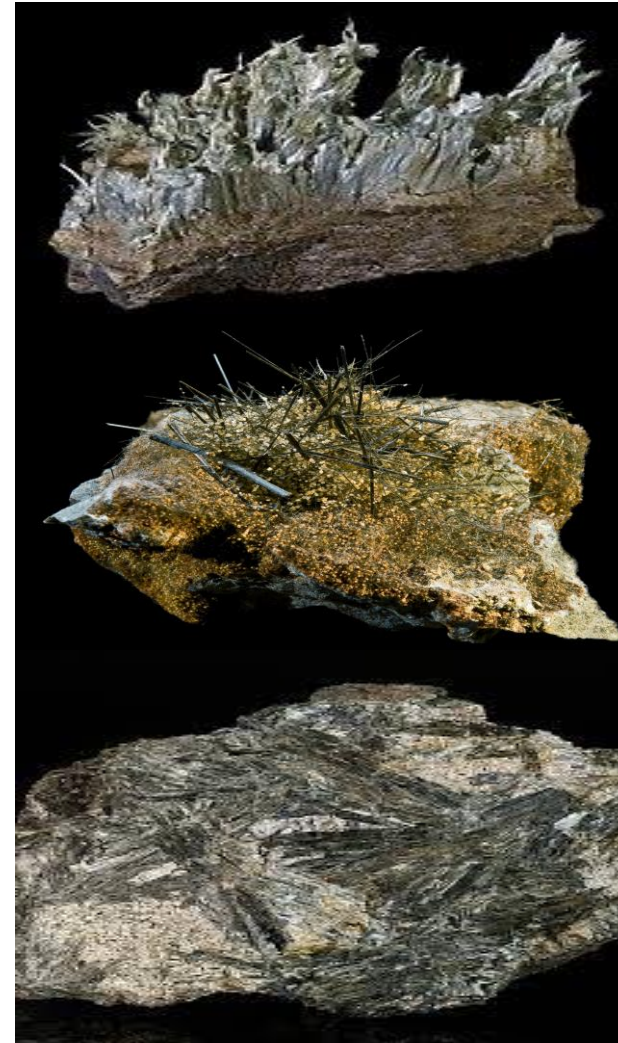
(not intentionally put in building products)

Tremolite

(Contaminant in Vermiculite,
Talc, Mastic)

Actinolite

Anthophyllite



A Brief History

- Egyptians, Greeks and Romans
- Middle ages
- Industrial revolution
- Pre-World War II
- Post-World War II
- 1960's and 70's
- Today



Egyptian mummy wrapped in asbestos cloth



Medieval armor insulated with asbestos cloth



1960's and 1970's housing boom



Industrial Revolution, making of asbestos products

Are we ever going to ban this?

- The government has tried many times
 - 1972 – Artificial Fireplace Block/Logs
 - 1973 – Sprayed Applied Asbestos Products
 - 1978 – Thermal System Insulations
 - 1990 – Sheet Vinyl Flooring
 - 2019 – SNUR (Significant New Use Rule)
 - 2023 – ARBAN Bill (Proposed total ban, in congress right now)

BUT as of now, NO BAN, even on imports!!!!!!

Is it still used?

- 1st quarter 2022 imports went up
 - 3 major industries:
 - Chlor-Alkali industry
 - Friction Industry
 - Gasket Industry

YEAR	METRIC TONS
2010	1,040
2011	1,180
2012	1,610
2013	772
2014	406
2015	325
2016	747
2017	332
2018	681
2019	172
2020	300

Source:

USGS National Minerals Information Center

What are some common materials?



Pipe and Tank Insulation

Silver roof coat

Fireproofing

Wall Texturing

Popcorn Ceiling

Wallboard systems

Stucco



What are some common materials?



Floor Tile and Mastic
Sheet vinyl
Cement pipe
Roofing
Ceiling tiles
Fire Doors
Window Putty/Glazing
Gaskets



What are some common materials?



- Road marker mastic
- Asphalt repair mastic
- Road Base
- Bridge Rail Pads
- Cement pipes (Culverts)
- Illegal dump site



What regulations are out there?



- OSHA - Worker Protection
 - 1971 (various updates)
 - Requires determination of presence, location, and quantity prior to **any** impact
- EPA – AHERA (Schools K-12 Public or Private)
 - 1986
 - Requires 3-year inspection of schools
- EPA - Clean Air Act (NESHAP)
 - 1973 (various updates)
 - Requires thorough inspection prior to **any** impact
 - Mainly about Waste Disposal



Local Regulations

- Arizona follows Federal NESHAP (except)
- Maricopa County
 - Rule 370
 - Adds some requirements
- Pima County
 - Local NESHAP
 - Notification
- Pinal County
 - Local NESHAP
 - Notification



When is an inspection required?

The rules are simple:

Everything IS Asbestos until you prove it is not!

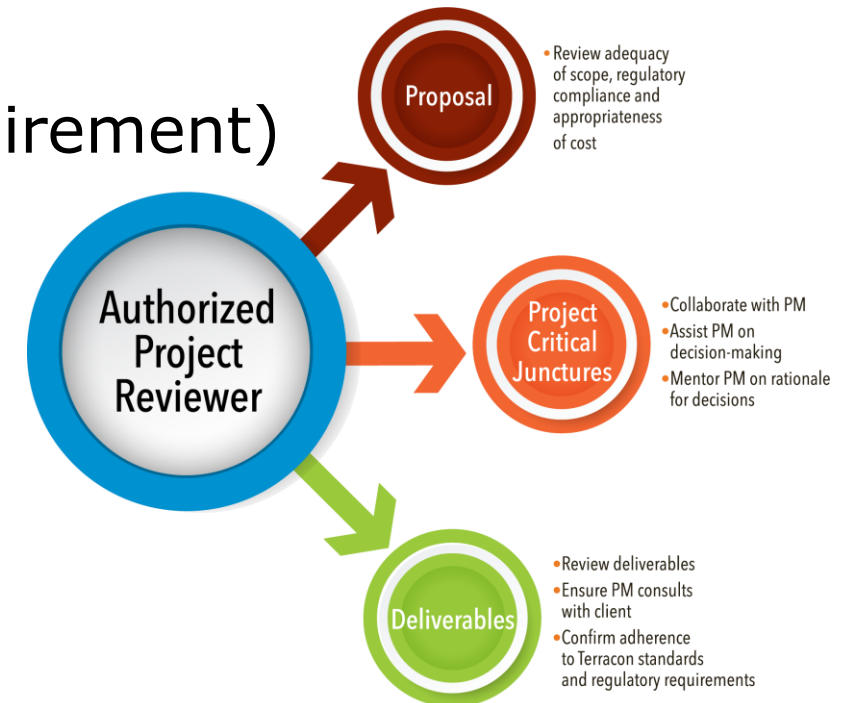
- The only materials exempt for sampling are:
 - Fiberglass insulation
 - Glass
 - Wood
 - Metal
- No exemptions for:
 - Project size
 - Age of the building
 - Time
 - Money available
 - Etc.

What if there was already an inspection?

- Inspections are good indefinitely except.....
- New renovations/materials installed
- Areas not sampled previously and now impacted
- Maricopa county Rule 370 says:
 - If the survey found non friable ACM, report is only good for 5 years.
 - Inspect the non friable ACM to check the condition

What does a good inspection report look like?

- Thorough Inspection
 - Are all the impacted materials sampled
 - Quantities included
 - All locations included
 - Current condition (Maricopa County requirement)
 - All Lab reports included
 - Clear drawings
 - All Inspector Certifications included
 - Review by experienced person
 - Good QA/QC program



Who can do these inspections?

- Per OSHA, EPA, and Local Regulations only Certified AHERA Building Inspectors.
 - Trained professionals
 - Annual re-certifications
 - Adherence to the regulation
 - Professional liability
 - Errors & Omissions Insurance



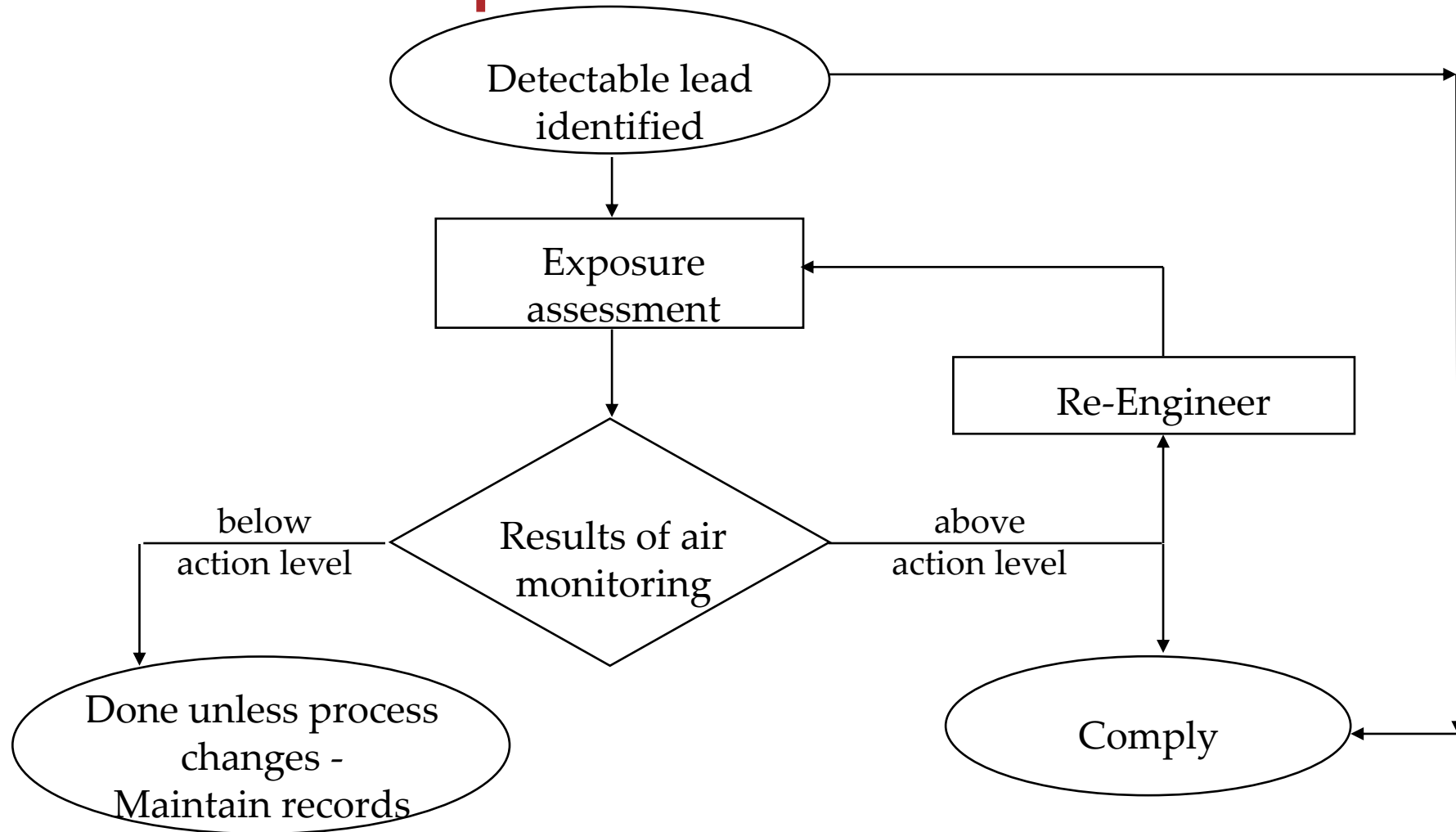
Where do we find Lead?



Lead, that is heavy.....

- Lead is regulated by OSHA and EPA
 - OSHA – Worker protection
 - EPA – Environmental Protection
- OSHA PEL 50 $\mu\text{g}/\text{m}^3$ (Air exposure)
- OSHA Regulatory Level: Any Detectable Level
- EPA Regulatory Level: 1mg/cm² or 0.5% or 5000ppm

Steps for an Exposure Assessment



Other ADOT requirements

When planning a ROW project ADOT has various Environmental Planning requirements (as do most States):

- Noise Assessment
- Biology & Clean Water Action Section 404/401
- Cultural Resources
- Material Source Guidance
- Water Resources
- Training

Terracon can help with all of this, One Stop Shop

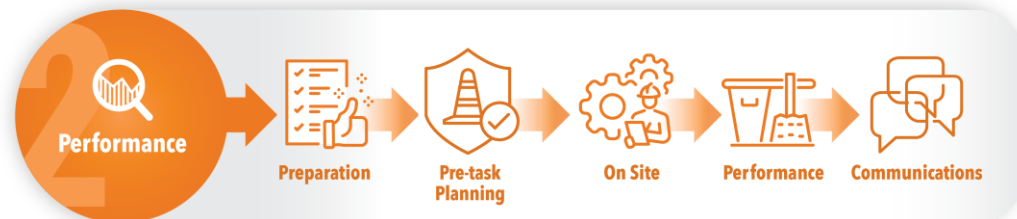
Where do we go from here?

- Make sure you understand all the requirements for your project.
- Hire a professional company that knows the rules and has the experience.
- Price is not always the way to pick the right person.
- Where can Terracon support your ROW projects?

What can Terracon do for you?



- 150+ offices throughout the US
 - Local: Tempe, Avondale, Tucson
 - Providing services throughout the State
- Local environmental team
 - Training
 - Asbestos/Lead Inspections
 - Environmental Planning
 - Phase I/II
 - LSI
 - UST/Tank Pull
 - Site Investigation/Remediation Support



Explore with us

Thank you!

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